

CLAIMS:

1. Method of manufacturing at least one actuator, which actuator (1) comprises at least one actuator part (2, 3) substantially made of synthetic resin, wherein a lead frame (4) comprising a number of leads (5) is provided, said synthetic resin actuator part (2, 3) of said actuator (1) being injection-molded onto said lead frame (4).
- 5 2. Method according to claim 1, wherein said actuator (1) comprises at least two separate synthetic resin parts (2, 3) which are injection-molded in such positions on said lead frame (4) that said at least two synthetic resin actuator parts (2, 3) are coupled to each other via a number of said leads (5).
- 10 3. Method according to claim 1 or 2, wherein said actuator (1) is provided with spring means (5) for coupling different actuator parts (2, 3), which spring means are provided by at least some of said leads (5) of the lead frame (4).
- 15 4. Method according to any of the preceding claims, wherein at least some of said leads (5) are arranged for conducting at least one electrical signal, said leads (5) particularly comprising an electrically conductive material, more particularly at least one suitable metal and/or alloy.
- 20 5. Method according to any of the preceding claims, wherein said lead frame (4) comprises at least one retaining part (6, 7) for retaining said leads (5), said retaining part (6, 7) being at least partially removed from said leads (5) after the molding of said synthetic resin actuator part (2, 3).
- 25 6. Method according to any of the preceding claims, wherein said at least one synthetic resin actuator part (2, 3) comprises a first synthetic resin subpart (2A, 3A) and a second synthetic resin subpart (2B, 3B), wherein said lead frame (4) comprises a first and a second subpart (4A, 4B), wherein said first synthetic resin actuator subpart (2A, 3A) is

injection-molded onto said first lead frame subpart (4A), and wherein said second synthetic resin actuator subpart (2B, 3B) is injection-molded onto said second lead frame subpart (4B).

7. Method according to claim 6, wherein said first actuator subpart (2A, 3A) and
5 second synthetic resin actuator subpart (2B, 3B) are molded simultaneously.

8. Method according to claim 6 or 7, wherein said first and second lead frame
subparts (4A, 4B) are in a first position with respect to each other during the molding of said
first and second synthetic resin actuator subparts (2A, 3A, 2B, 3B), for molding these
10 synthetic resin subparts separately from each other, and wherein said lead frame subparts
(4A, 4B) are brought into a second position with respect to each other after the molding of
said actuator subparts (2A, 3A, 2B, 3B) for bringing said synthetic resin actuator subparts
together.

15 9. Method according to claim 8, wherein said first and second lead frame
subparts (4A, 4B) extend substantially in one plane in said first position.

10. Method according to claim 8 or 9, wherein said first and second lead frame
subparts (4A, 4B) are located substantially opposite each other in said second position.
20

11. Method according to any of the preceding claims, wherein at least two lead
frames (4, 14) are provided for manufacturing at least two respective actuators.

12. Method according to claim 11, wherein said at least two lead frames (4, 14,
25 24, 34) are integrally connected, for example in a lead frame band (104).

13. Method according to claim 12, wherein said at least two lead frames (4, 14,
24, 34) are separated from each other ~~before or~~ after the molding of said synthetic resin
actuator part (2, 3).
30

14. Method according to any of the preceding claims, wherein said lead frame (4)
comprises at least one row of leads (5), such that each at least one synthetic resin actuator
part (2, 3) is coupled to at least two consecutive leads (5).

15. Method according to any of the preceding claims, wherein said at least one actuator (1) is provided with at least one electromagnet (8), particularly a coil, preferably before the molding of said synthetic resin actuator part (2, 3).
- 5 16. Method according to claim 15, wherein said electromagnet (8) is connected to at least part (5; 15) of said lead frame (4).
17. Method according to claims 4 and 16, wherein said electromagnet (8) is electrically connected to at least some of said leads (5).
- 10 18. Method according to any of claims 14 to 16, wherein said at least one actuator (1) is provided with at least two first electromagnets (8), and said lead frame (4) is provided with an interconnecting part (15) for connecting said first electromagnets (8) electrically to each other.
- 15 19. Method according to any of the preceding claims, wherein said actuator (1) is provided with at least one optical element (9), and wherein the actuator (1) is arranged for moving said optical element.
- 20 20. Method according to claim 19, wherein said optical element (9) is a lens, a mirror, and/or an optical fiber.
21. Method according to claim 19 or 20, wherein said optical element (9) is formed by injection-molding during the injection-molding of said synthetic resin actuator part (2, 3).
- 25 22. Method according to any of the preceding claims, wherein said actuator (1) is arranged and suitable for use in an optical reading and/or writing head of an optical reading and/or writing device.
- 30 23. Method according to any of the preceding claims, wherein said lead frame (4) is arranged for anchoring said synthetic resin actuator part (2, 3), and the lead frame (4) particularly comprises a number of perforations (10) to provide said anchorage.

24. Lead frame, arranged for use in a method according to any of the preceding claims.
25. Lead frame band, comprising at least one lead frame according to claim 24.
- 5 26. Actuator, characterized in that the actuator (1) is manufactured by a method according to any of the claims 1 to 23.
- 10 27. Optical reading and/or writing head comprising an actuator (1) according to claim 26.
28. Optical reading and/or writing device comprising the reading and/or writing head according to claim 27 and further comprising a support for an optical disc.
- 15 29. Method of manufacturing a lead frame according to claim 24 and/or a lead frame band according to claim 25, for example by punching the lead frame (4) and/or lead frame band.